Amendments to the Specification:

(1) Please replace the first full paragraph on page 6 with the following paragraph:

Also, it is possible to use embodiments of the invention to identify failure modes of given medical device designs when such designs are subjected to dynamic mechanical and chemical forces. By identifying the cause of failure in a design, the "weak link" in the design can be pinpointed and necessary corrections to materials or configuration made in order to obviate the problem. It is also possible to test theories of failure experienced during in vivo clinical testing using embodiments of the invention. In other words, if an in vivo clinical failure of a medical device should occur[e], there may be one or more theories postulated as to the cause of the failure, particularly in a situation where multiple components of a device have failed and it is not clear from the clinical data which failure occurred first, or if an initial failure of one component of the device precipitated subsequent failure of other components of the device. The dynamic modeling capabilities of embodiments of the invention can allow rapid testing of multiple theories as to the timing and causation of complex failure modes and quickly determine which of the postulated theories is correct.

(2) Please replace the first full paragraph on page 20 with the following paragraph:

The TPEG material model (W), discussed above, was derived from a doctoral thesis~~, which~~ that discusses the stress in abdominal aortic aneurysm. (*See* Madhavan Lakshmiraghavan, Mechanical Wall Stress in Abdominal Aortic Aneurysm: Towards Development of a Clinical Tool to Predict Aneurysm Rupture (1998) (unpublished Ph.D. dissertation, University of Pittsburgh which is hereby incorporated herein in its entirety).

(3) Please replace the fifth full paragraph on page 32 with the following paragraph:

Figure 9A illustrates a flow chart~~, which~~ that sets forth the basic components of an embodiment of the inventive system and process in accordance with the present invention. In particular, this figure illustrates how to develop better-designed TPEGs. The steps illustrated may of course be utilized for developing other medical devices, other than TPEGs.

(4) Please replace the second full paragraph on page 33 with the following paragraph:

It should be noted here that the "anatomy" desired, which defines the embodiment in which a medical device is to be tested, is not necessarily limited to a patient's body. For example, embodiments of the present invention could be used to obtain test results for medical device performance in a wide variety of in vitro tests, some of which may be necessary or desirable for Food and Drug Administration (FDA) approval of the medical device in question. Various forms of in vitro failure mode testing such ~~as~~ on tensile pull testing and the like could be performed by an embodiment of the invention and allow the tester to easily vary test parameters, device design, and test frequency to quickly obtain the desired test results. In addition, volumetric anatomical data for animals could be used to simulate animal testing that is necessary or desirable for FDA approval of a medical device. This may be of particular importance for a medical device design, which seeks to establish equivalence with an existing approved product which has been previously tested in animal studies.